

2510

Variable Frequency Audio Oscillator, IN-1

Seminal Report
July 59

This device provides a variable frequency audio tone in the frequency range of 30 to 3000 cps. The frequency of this tone must be accurate to within $\pm 2\%$ over the temperature range of 0°C to 55°C . The physical size of the oscillator is important since it must be carried concealed on the person. In a typical application, an operator would determine pulse repetition rates of enemy radar by aurally comparing it with the tone of the IN-1.

30 to 3000 cps in two bands

xxxxx source: Self-contained 22.5 volt battery

Approximately 10 ohms

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Frequency Stability: Better than $\pm 2\%$ over the temperature range of -40°C to $+55^{\circ}\text{C}$ and a supply voltage variation of 15 to 30 volts.

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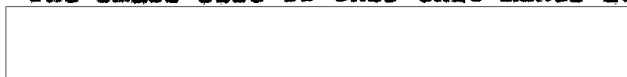
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5 x 2 7/8 x 1 1/4 inches

1 lb.

The IN-1 is an accurate, miniature source of audio frequencies for aural comparisons.

The small size of this unit makes it ideal for



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No training beyond an explanation of its functions with collection devices is required to operate the IN-1.

No field maintenance is contemplated other than battery replacement.

Three prototype models of this oscillator have been designed. The first model used a vacuum tube and was dropped because of high power consumption. The second model was transistorized and met the electronic specifications but the mechanical features were not rugged enough to maintain the alignment necessary to insure the required tolerances on resettability. The size objectives were then relaxed to permit redesign to remove the mechanical deficiencies. In the meantime a new and much smaller potentiometer became available which showed promise of making possible a considerable reduction in size. However, closer examination revealed that the cost ~~was~~ of redesign would outweigh the advantages of the size reduction obtained and the fabrication of the larger unit was commenced.

Complete the fabrication of 9 units.

Photographs are the same as used in Figures 84 and 85 in the last annual report.

None

Unclass.